

## LA-UR-19-31368

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# **Draft Discharge Permit 1132**

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Groundwater Remediation Manager  
Sealaska Technical Services**

**Public Hearing  
November 14, 2019**

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# Qualifications

## EDUCATION

M.S., Geology (Honors), University of New Mexico, 1991  
B.S., Geology, University of Texas, 1985

## Sealaska Technical Services/N3B (2018-Present)

- Groundwater Remediation Manager

## Los Alamos National Laboratory Environmental Restoration Project (1998-2018)

- Lead Scientist in Environmental Management Directorate
- Group Leader in the Engineering and Technology Division
- Program Manager for LANL's Water Stewardship Program.
- Project Leader for the Canyons Investigations.
- Team Leader for Canyons Investigations.

## Environmental Resources Management, Inc. (1993 - 1998)

- Senior Project Manager/Senior Geologist

## New Mexico Environment Department (1991 - 1993)

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# Presentation Overview

- Site hydrogeologic setting
  - Geologic setting
  - Faults and fractures
- Groundwater monitoring for RLWTF
  - Objective
    - ✓ Early detection of any future noncompliant releases
    - ✓ Additional safety net to support extensive administrative and engineering controls
    - ✓ Monitoring to characterize extent of groundwater effected by noncompliant discharge
  - Monitoring well locations
  - Monitoring suite and frequency
  - Quality of wells
  - Defense in depth – groundwater monitoring coupled with use of engineering controls and visual inspections

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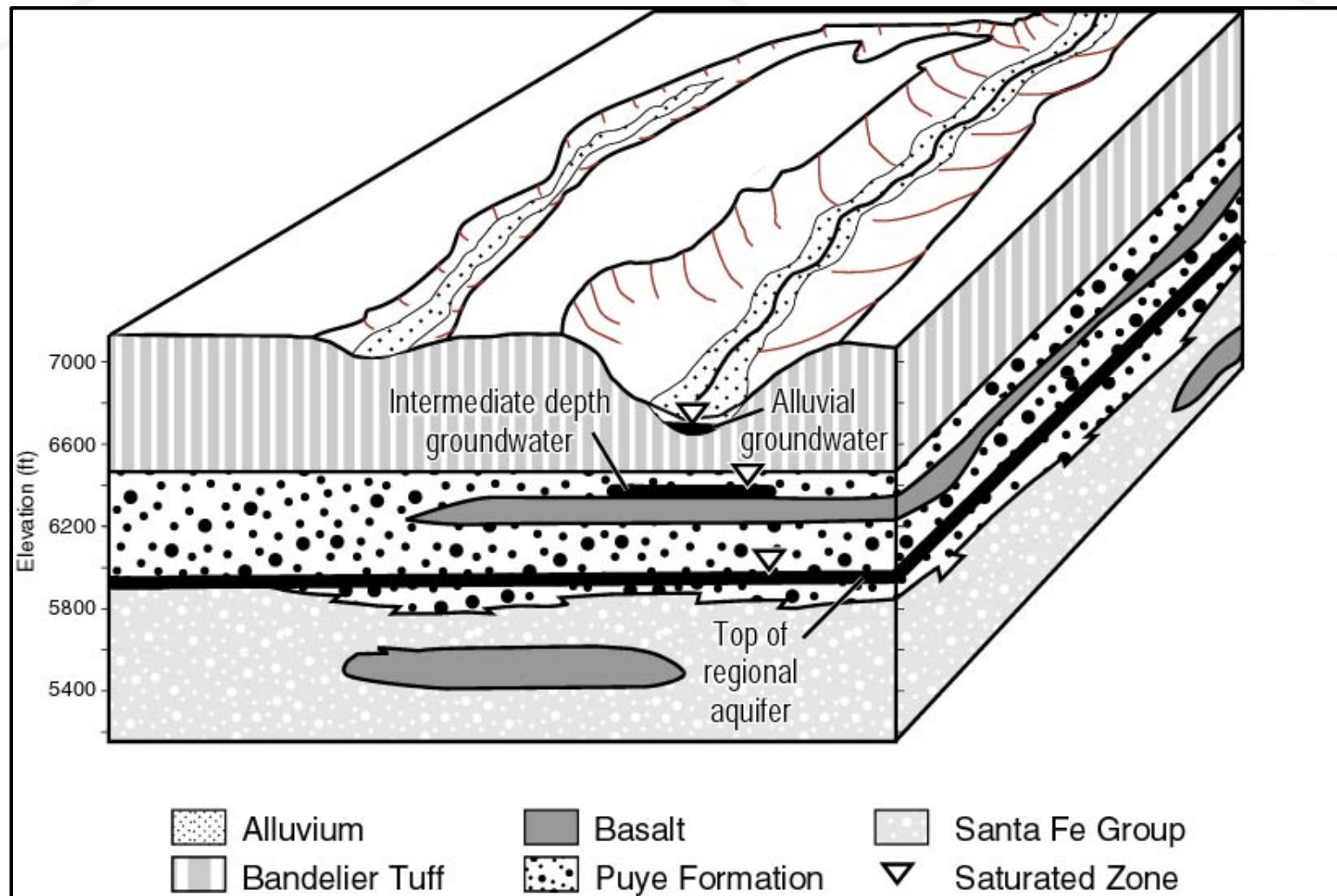
# General Groundwater Setting

3 groundwater zones

- Alluvial
- Perched-intermediate
- Regional

Contaminant pathway to regional can be complete only under very unique conditions

- Large amount of mobile contaminant
- Lots of water (millions of gallons)



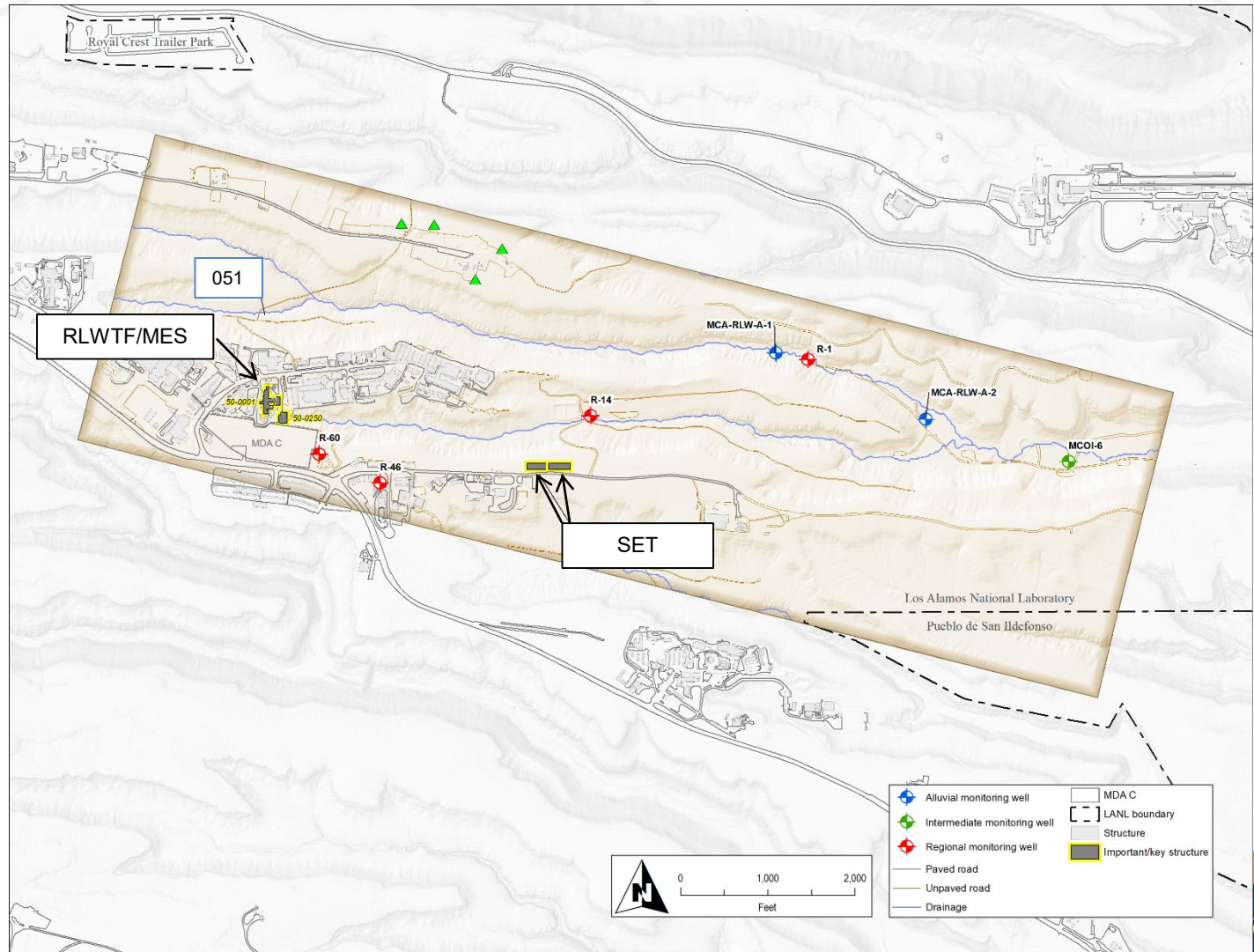
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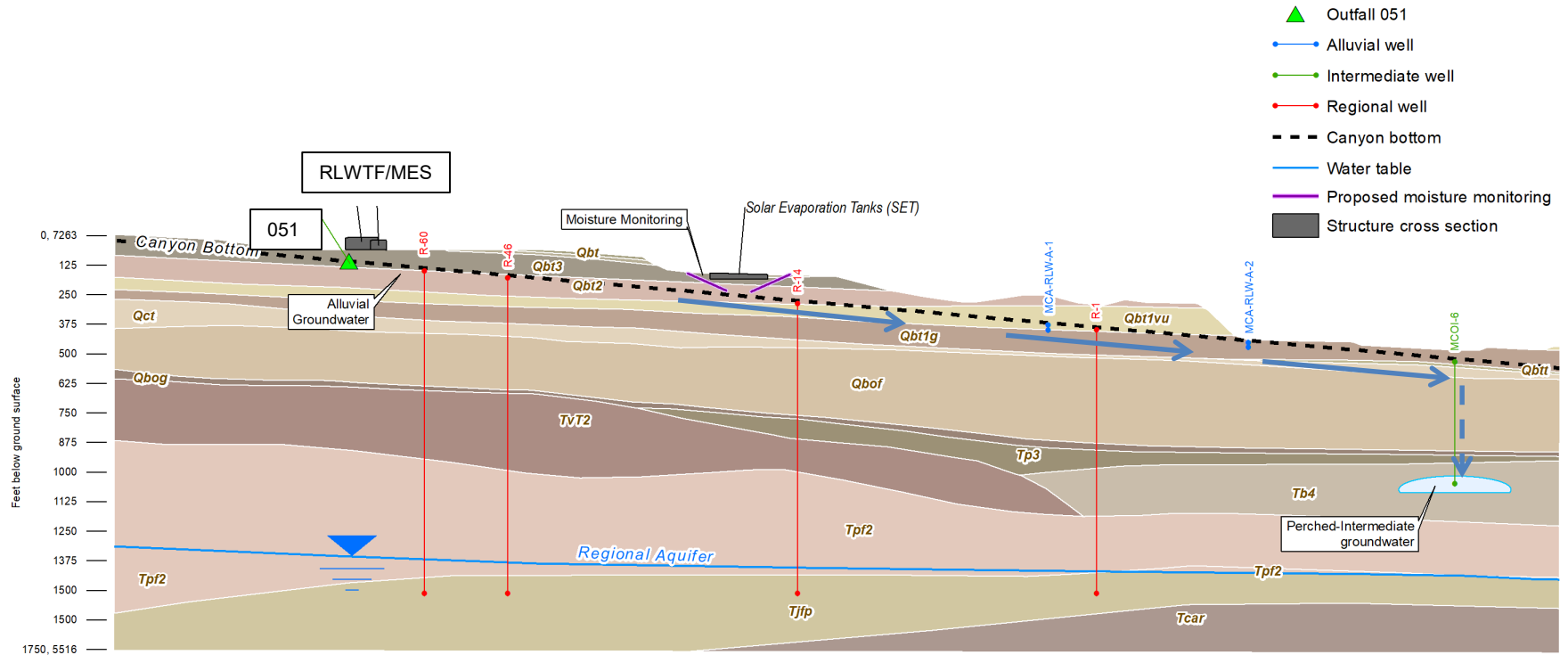


# Groundwater Monitoring Network

- 2 alluvial wells
- 1 perched-intermediate well (MCOI-6)
- 4 regional aquifer wells (R-60, R-46, R-14, R-1)



# Geology



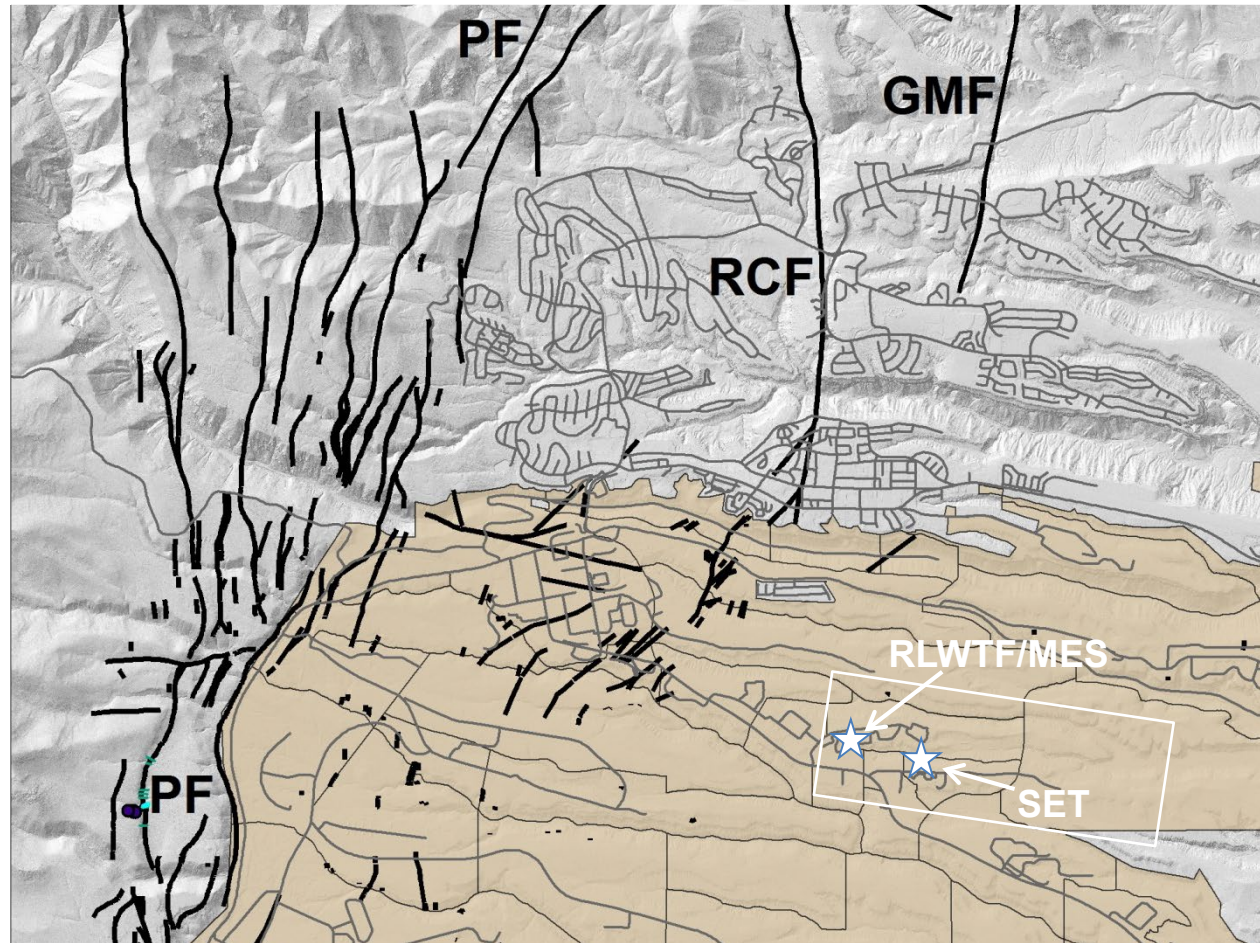
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# Faults and Fractures

- ❖ Faults are mapped for the Laboratory's seismic hazards program
- ❖ No known faults are located near RLWTF and associated facilities



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# Groundwater Monitoring

## Groundwater Monitoring Objectives

- Early detection of any future noncompliant releases
  - Additional safety net to support extensive administrative and engineering controls
  - Monitoring to characterize extent of groundwater effected by noncompliant release
- 
- 2 alluvial wells
    - ✓ Located in watercourse just downstream of RLWTF Outfall 051
    - ✓ Supplement monitoring at outfall for early detection and characterization of extent of potential environmental effect of non-compliant release from outfall
  - 1 perched-intermediate well
    - ✓ Supplement monitoring at Outfall 051 and at alluvial wells to characterize extent of potential environmental effect of non-compliant release from Outfall 051
    - ✓ Located in the perched-intermediate groundwater zone beneath Mortandad Canyon, along infiltration pathway to regional aquifer
    - ✓ Environmental effect would still likely take years (greater than 2-3) to manifest in perched zone
  - 4 regional aquifer wells
    - ✓ Monitor regional aquifer downgradient of main RLWT facility
    - ✓ Provides additional monitoring “safety net” within the regional aquifer
    - ✓ Environmental effect of release from facility would likely take decades to reach the regional aquifer

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# Monitoring Suite and Frequency

- Alluvial and Perched-Intermediate Wells
  - Quarterly
  - TKN, Nitrate, TDS, Chloride, Fluoride, Perchlorate
- All Wells (incl. alluvial, perched, and regional)
  - Annually
  - “Full Suite” of permitted constituents listed in 20.6.2.3103 NMAC and 20.6.2.7

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# Robust Monitoring

- ✓ All existing wells in the draft permit meet NMED construction and design guidelines
- ✓ All existing wells in the draft permit produce high-quality, representative data
- ✓ NMED-approved Interim Facility-Wide Groundwater Monitoring Plan recognizes these wells as providing representative data

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# Defense in Depth

- ✓ Wells provide robust environmental protection to complement administrative and engineered controls
- ✓ Engineered and administrative controls provide most protective early-warning systems

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